



Alaska Climate Research Center
The Alaska State Climate Center

STATEWIDE CLIMATE SUMMARY APRIL 2022

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Alaska’s Statewide Climate Summary for April 2022 provides an overview of weather for the month based on data from selected weather stations throughout the state. “Departure from normal” refers to the climatological average over the 1991-2020 normal period. Here, we report on temperature, precipitation and drought conditions in the state, as well as the condition of the Arctic sea ice.

HIGHLIGHTS

Drier than normal conditions across most of the state, with **near record low precipitation** across the Interior.

Colder than normal April for the Interior, North Slope, and Panhandle; warmer than normal for the West Coast.

High end-of-month snow water equivalent values across Interior river basins as rapid snowmelt occurs.

Wildfire season started this month with **10,302 acres burned** in a fire near Kwethluk in southwest Alaska.

Significant Weather Events and Synoptics

Storm activity across the state peaked at the beginning of April, then decreased throughout the month. A series of fronts associated with low pressure systems in the Gulf of Alaska caused widespread, but generally light snowfall and transported colder air to the mainland (Figure 1AB). The same systems produced periods of rain and high winds over the Panhandle, with peak winds over April 6-7 ranging from 30 to 60 mph according to the National Weather Service Juneau. High surface pressure became the dominate

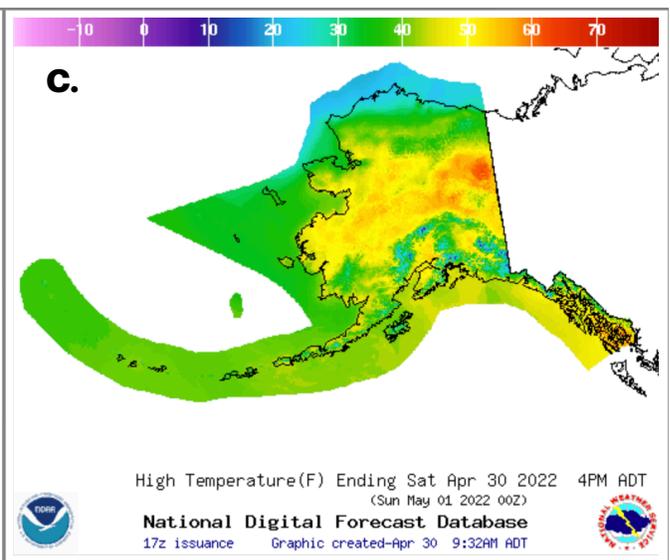
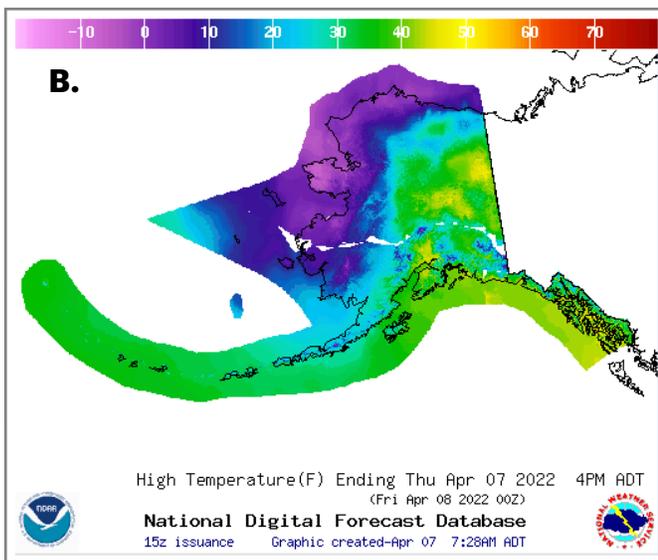
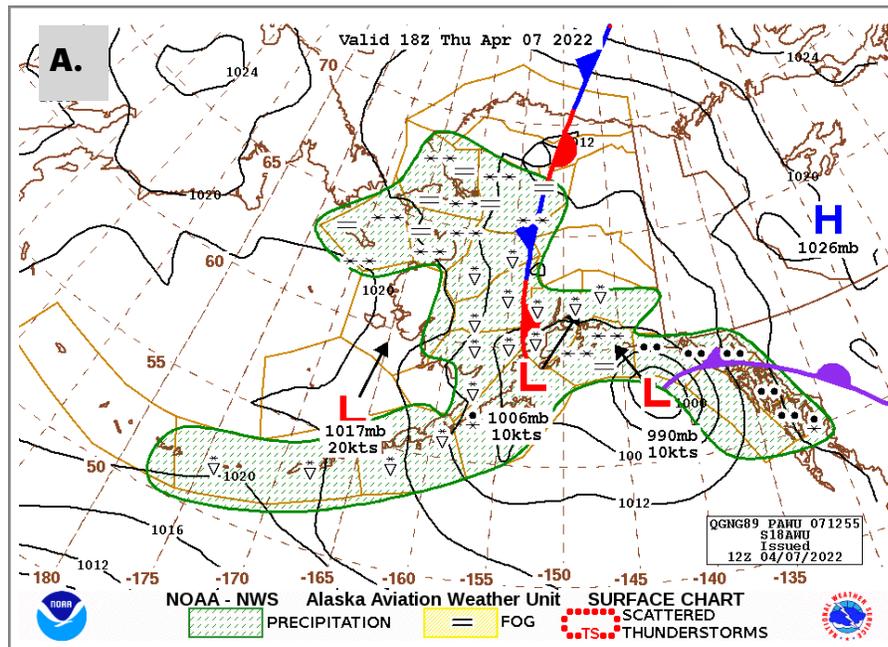


Figure 1. (A) NWS surface analysis for 18 UTC April 7; NWS maximum temperature forecasts for (B) April 7 and (C) April 30.

feature over Alaska during the middle of the month, promoting drier and generally quieter weather conditions for the much of the state. On April 17 a gradual warming trend began across the Interior, where temperatures had previously been below normal, and the snowmelt process started to accelerate. By the end of the month temperatures were near or slightly above normal throughout the region, with maximum temperatures in the 50s and 60s (Figure 1C) and minimum temperatures close to or above freezing.

Temperature

Daily average temperatures were below normal over the Interior and Panhandle for much of April, with the greatest departures recorded in the central and eastern Interior (Figure 2). Minimum temperatures in the teens and twenties below zero were observed at locations such as Tanana, Chicken, and Eagle during the first 10 days of the month. Parts of the Panhandle recorded minimum temperatures below freezing on April 13-15, with the

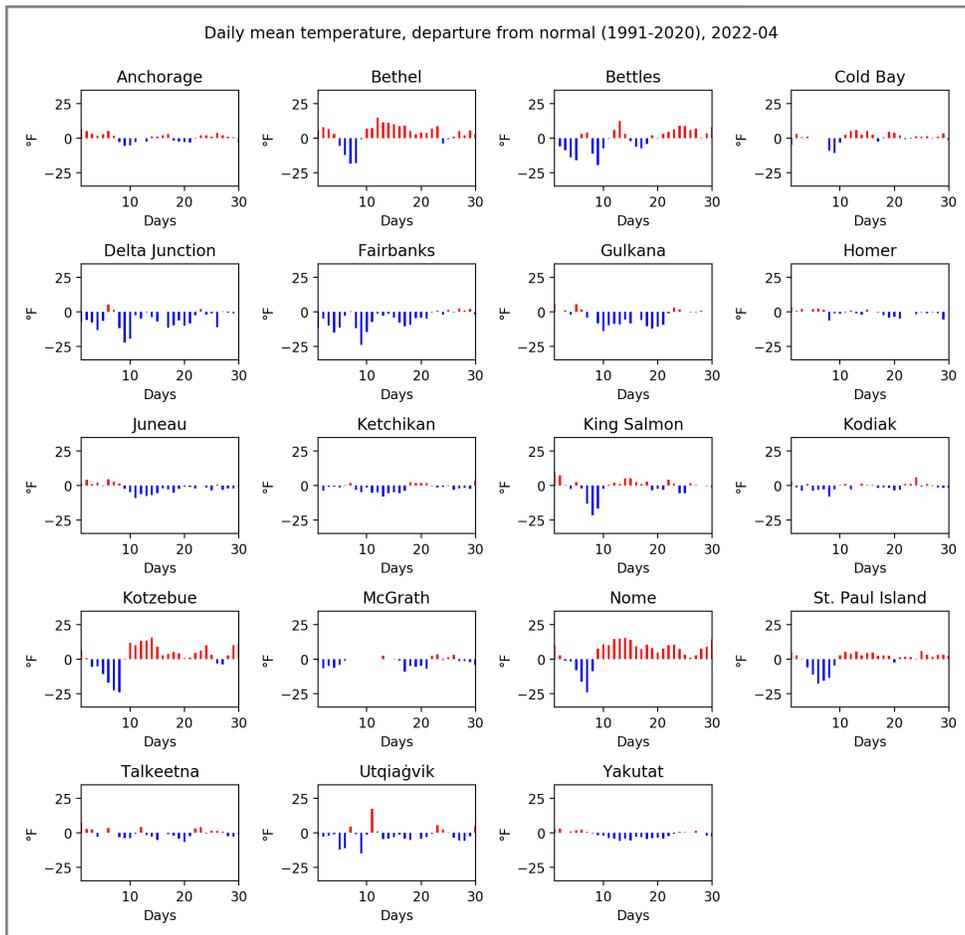


Figure 2. Daily mean temperature departures for each day in April 2022 at the selected stations.

Juneau airport setting a new daily record minimum on April 15. In contrast, southerly flow from low-pressure systems passing through the Bering Sea transported warm air and cloud cover over the West Coast. With the transition to upper-level ridging and decreased cloud cover, temperatures across the Interior gradually rose through the rest of the month and were closer to normal. The Fairbanks airport recorded its first day with temperatures above 50°F on April 14 and reached a high of 59°F on April 29. Temperatures rose above 50F for the first time this season in Juneau on April 20 and in Anchorage on April 23. The highest recorded temperature this month was in Skagway on April 25 with a high of 62°F. Overall, colder than normal temperatures were recorded at most stations across the state, except for stations along the West Coast (Figure 3, Table 1).

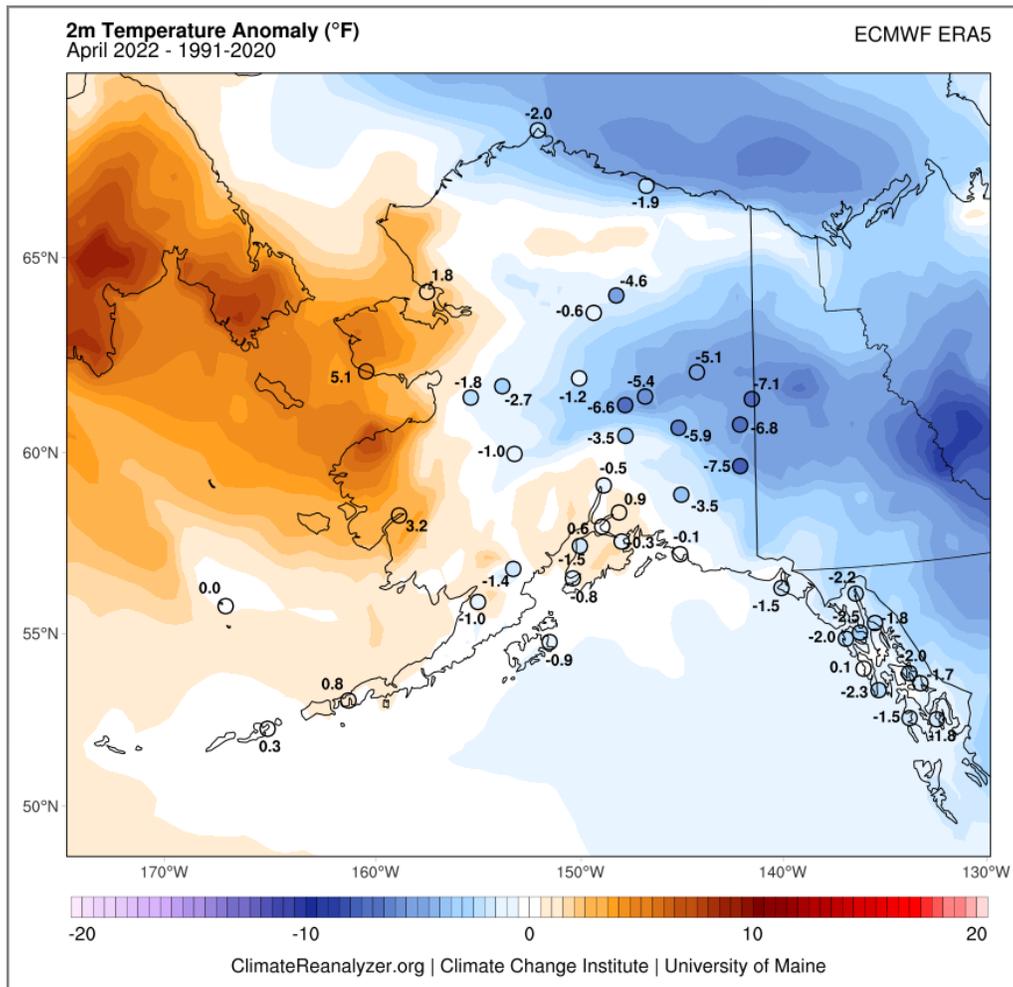


Figure 3. Monthly mean temperature departure from normal (°F), April 2022, for selected stations around the state of Alaska. ERA5 gridded data are from Climate Reanalyzer, Climate Change Institute, University of Maine.

Station	Observed (°F)	Normal (°F)	Departure (°F)
Anchorage	38.1	37.5	0.6
Bethel	32.2	29.1	3.1
Bettles	24.0	24.6	-0.6
Cold Bay	35.8	35.0	0.8
Delta Junction	28.0	33.8	-5.8
Fairbanks	28.3	33.7	-5.4
Gulkana	29.1	32.6	-3.5
Homer	37.9	38.7	-0.8
Juneau	39.0	40.8	-1.8
Ketchikan	41.8	43.5	-1.8
King Salmon	35.0	36.1	-1.0
Kodiak	38.2	39.1	-1.0
Kotzebue	18.1	16.3	1.8
McGrath	31.2	32.2	-1.0
Nome	27.8	22.6	5.1
St. Paul Island	30.1	30.1	0.0
Talkeetna	35.7	36.2	-0.5
Utqiagvik	2.0	4.1	-2.0
Yakutat	37.1	38.6	-1.5

Table 1. Mean monthly air temperature, normal (1991-2020) and departure for selected stations throughout the state, April 2022. Color-coded to Figure 3 (yellow-orange-red = warmer than usual; shades of blue = cooler than usual).

Precipitation and Snowfall

Below normal monthly precipitation totals were recorded at most of the first-order stations across the state, with especially low totals across the Interior and North Slope (Figure 4, Table 2&3). Although April is climatologically the driest or one of the driest months of the year in these regions, this month was within the top 5 driest Aprils on record for Bettles and Delta Junction, and within the top 10 driest for Fairbanks (Figure 5).

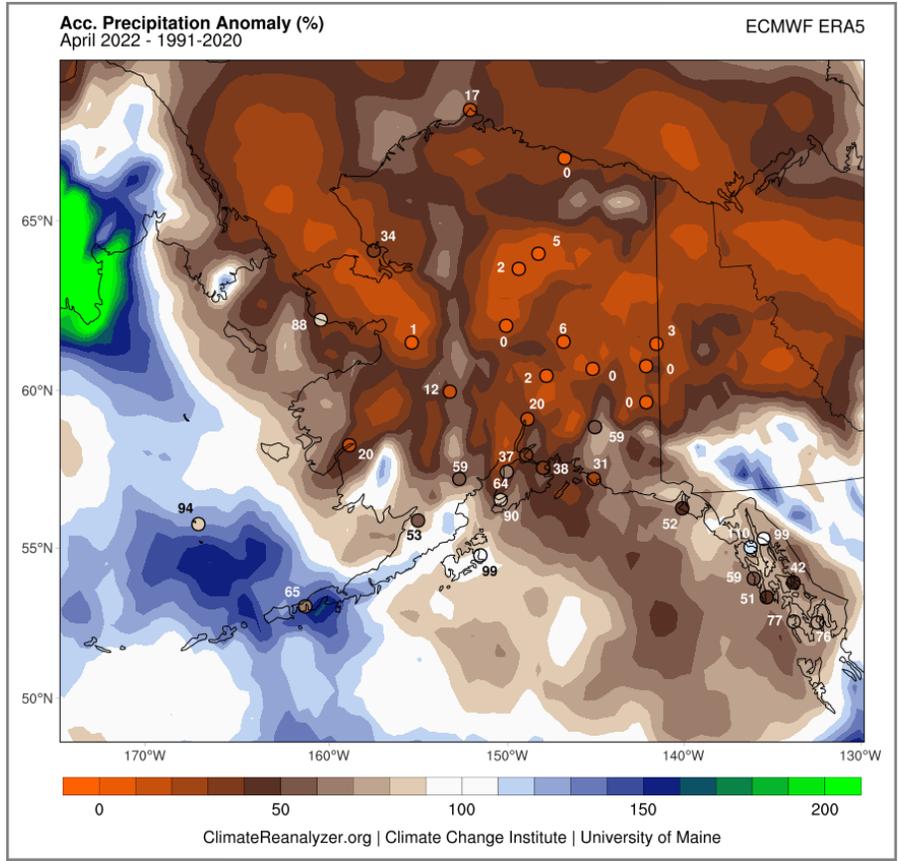


Figure 4. Monthly mean precipitation departure from normal (in percent), April 2022, for selected stations around the state of Alaska. ERA5 gridded data are from Climate Reanalyzer, Climate Change Institute, University of Maine.

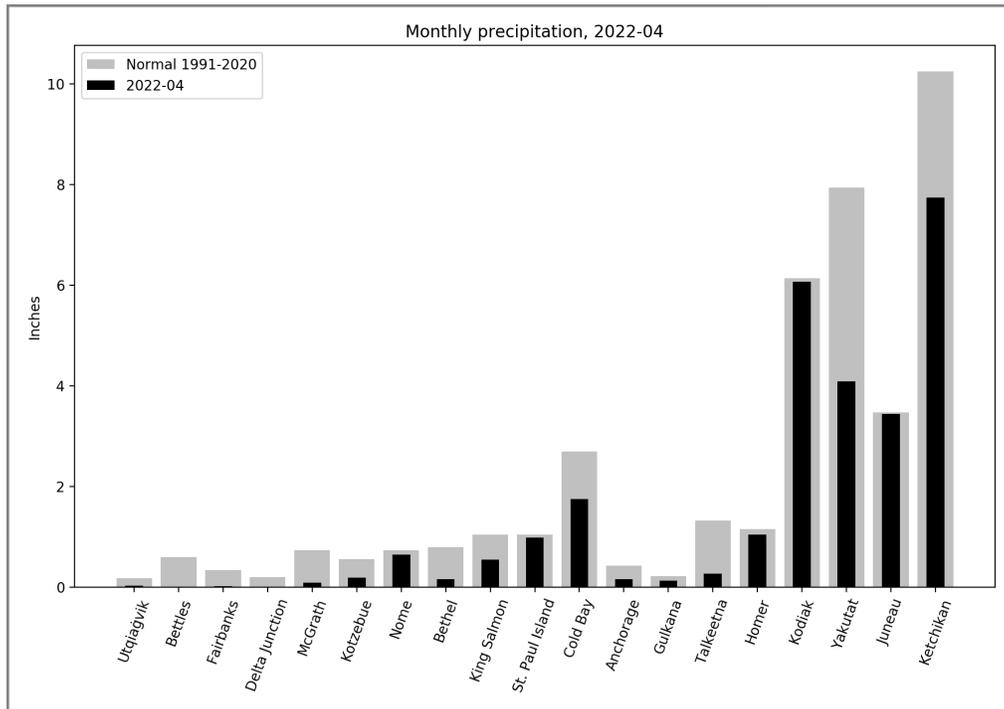


Figure 5. Monthly precipitation sums for April 2022 at the selected stations compared to the normal (1991-2020), in inches.

Station	Precipitation (in)	Normal (in)	% of Normal
Anchorage	0.2	0.4	37.2
Bethel	0.2	0.8	20.3
Bettles	0.0	0.6	1.7
Cold Bay	1.8	2.7	64.8
Delta Junction	0.0	0.2	0.0
Fairbanks	0.0	0.3	5.9
Gulkana	0.1	0.2	59.1
Homer	1.0	1.2	90.4
Juneau	3.4	3.5	99.1
Ketchikan	7.7	10.3	75.5
King Salmon	0.6	1.0	52.9
Kodiak	6.1	6.1	98.9
Kotzebue	0.2	0.6	33.9
McGrath	0.1	0.7	12.2
Nome	0.7	0.7	87.8
St. Paul Island	1.0	1.0	94.2
Talkeetna	0.3	1.3	20.5
Utqiaġvik	0.0	0.2	16.7
Yakutat	4.1	7.9	51.5

Table 2. Monthly precipitation sum, normal (1991-2020) and departure expressed as a percentage of the normal (1991-2020) for selected stations throughout the state, April 2022. Shades of brown, blue, and green correlate with Figure 4.

Station	Snow (in)	Normal (in)	Deviation (%)	Snow Depth (in)
Anchorage	2.6	4.0	65.0	0
Bettles	0.0	5.2	0.0	18
Fairbanks	0.5	3.1	16.1	5
Juneau	0.2	1.2	16.7	0

Table 2. Monthly snowfall sum, normal (1991-2020), departure expressed as a percentage of the normal, and end-of-month snow depth for the selected stations that measure snowfall, April 2022.

With below normal snowfall and daytime temperatures above freezing, snow water equivalent values at many SNOTEL stations reached their seasonal peak and began to decrease. The rate of snowmelt rapidly increased at many locations during the last week of April (Figure 6), when high temperatures were in the 50s and 60s and low temperatures remained above freezing. However, snow depth and snow water equivalent measurements at the end of the month were still much above normal across the state, particularly in the Yukon and Tanana River basins (Figure 7).

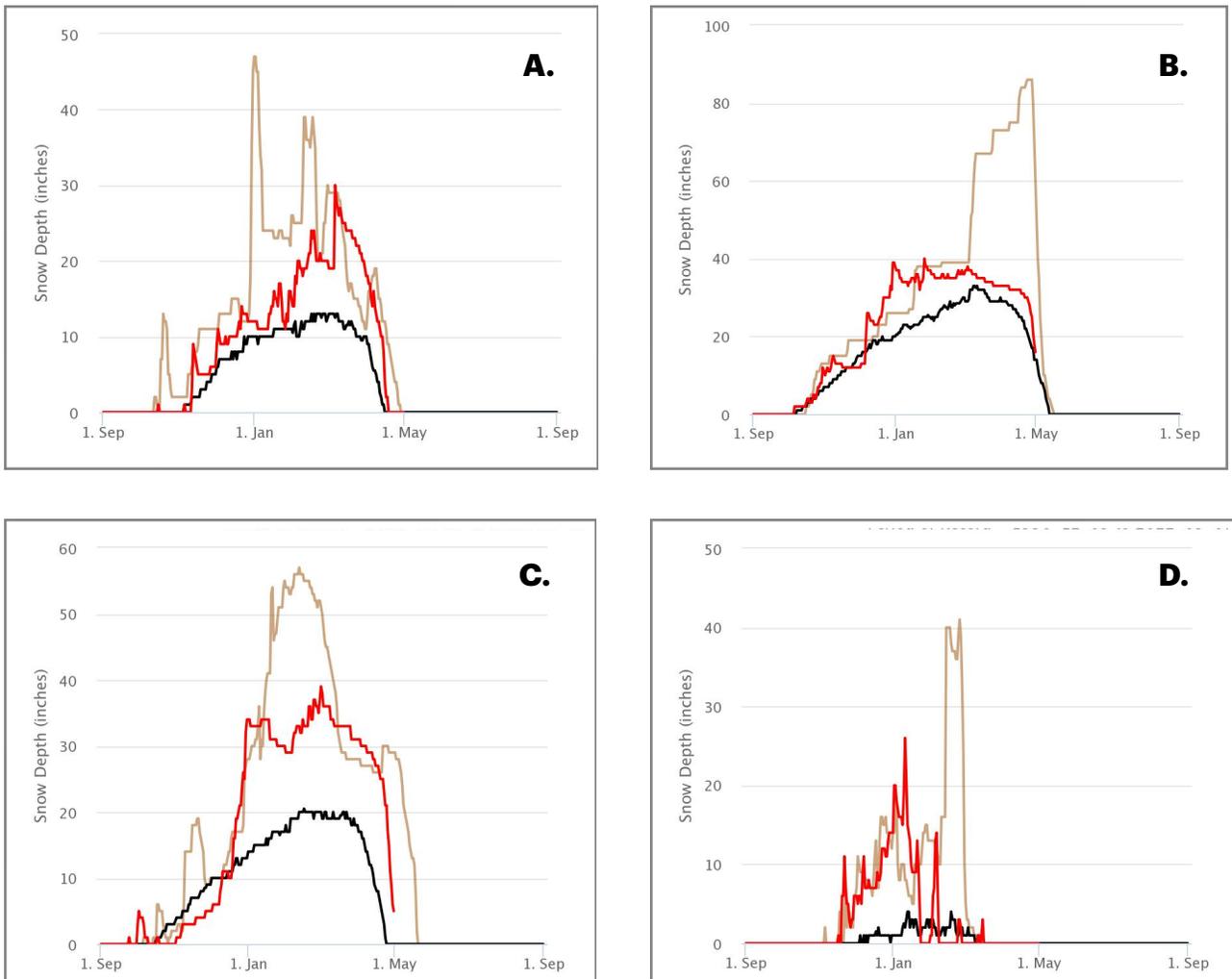


Figure 6. Average (black line), maximum (tan line), and 2021-2022 (red line) snow depth for (A) Anchorage, (B) Bettles, (C) Fairbanks, and (D) Juneau. Graphic source: Alaska-Pacific River Forecast Center (weather.gov/aprfc/Snow_Depth).

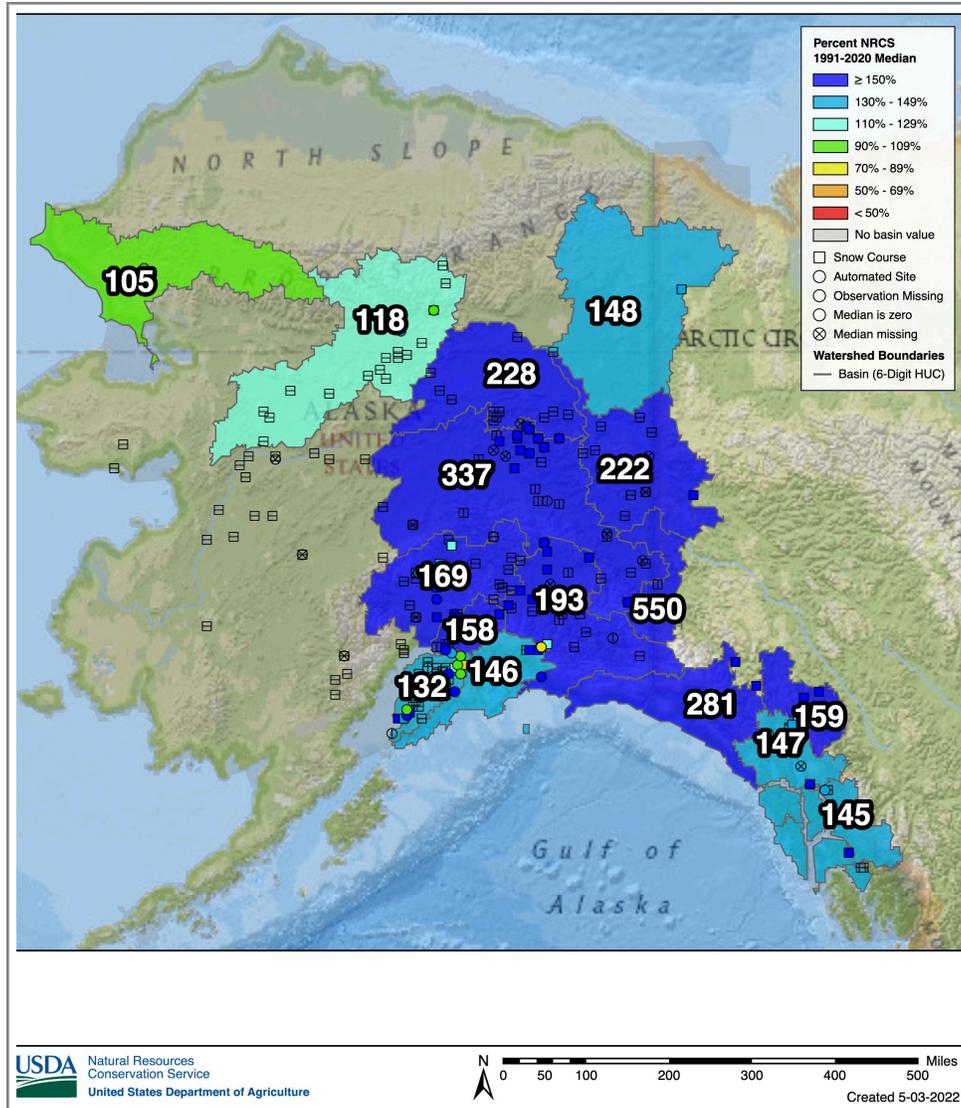


Figure 7. Season to date snow water equivalent departure from normal (1991-2020, in percent) on May 1, 2022 for SNOTEL stations, snow course sites, and watershed basins across Alaska. Graphic source: USDA Natural Resources Conservation Service (<https://www.wcc.nrcs.usda.gov/snow/>).

Wildfire Activity

The 2022 Wildfire season has started in Alaska. As of May 2, 41 fires had burned across the state – 35 human caused and 6 with unknown or undetermined causes – totaling 10,310 acres. Almost all of the monthly total was from a single fire near Kwethluk in southwest Alaska, where the winter snowpack melted early and abnormally dry conditions persisted throughout April. The fire was first reported on April 16, and as of April 26 reports indicated no smoke or activity.

Please check our UAFSmoke website at <http://smoke.alaska.edu> for current and updated fire information. UAFSmoke shows current wildfire status information and up to 72 hours forecast of concentration of black carbon and particulate matter included in wildfire smoke.

Arctic Sea Ice

The average Arctic sea ice extent for April 2022 was 14.06 million square kilometers (5.43 million square miles), the 11th lowest in the satellite record. At the beginning of the month, sea ice declined slowly, at a rate of 0.10% between March 31 and April 7. The rate sea ice loss increased to 1.83% from April 7-14 and continued through April 14-21, then decreased to a rate of 1.27% from April 21-28. Sea ice loss was greatest in the Bering Sea and the Sea of Okhotsk, while other regions had minimal loss of ice during the month. By April 30, the arctic sea ice extent had decreased to 13.65 million square kilometers (5.27 million square miles). Figure 8 shows a time series of sea ice extent while Figures 9A,B show the sea ice extent and concentration as of April 30, 2022 compared to the average from 1981-2010.

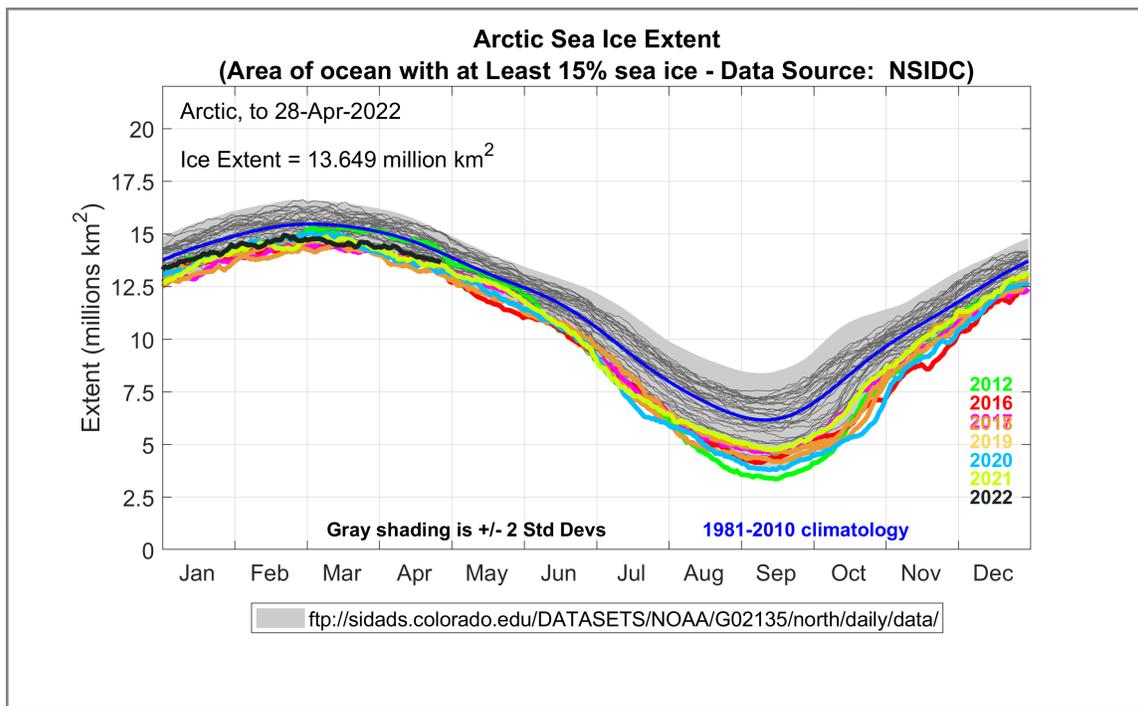


Figure 8. Time series of daily Arctic sea ice extent. This year's data (jungle green) are updated until April 28, 2022. The median sea ice extent for the 1981-2010 reference period is depicted in blue. Specific years are highlighted in colors. Plot Compiled by: Howard J. Diamond, PhD; Climate Science Program Manager at NOAA's Air Resources Laboratory Data Source: National Snow & Ice Data Center (nsidc.org/).

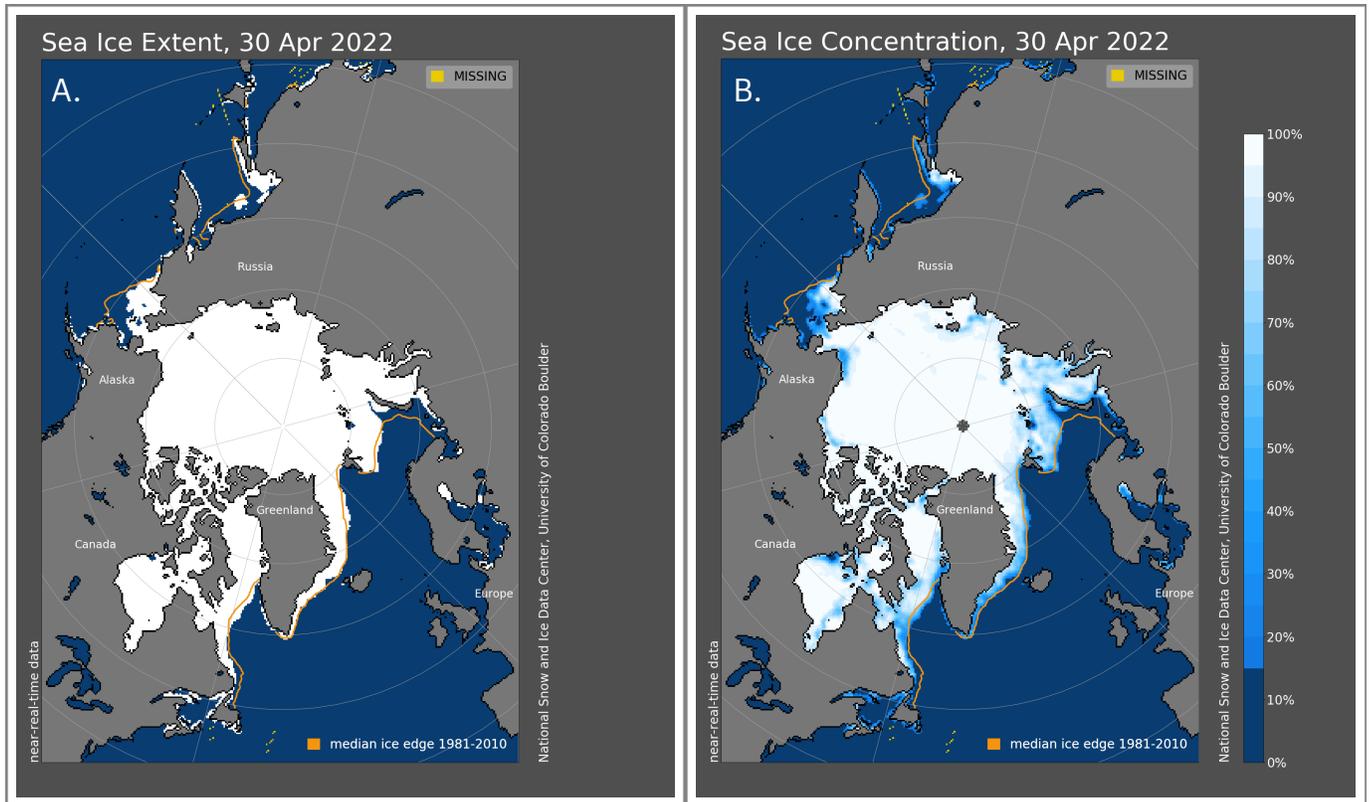


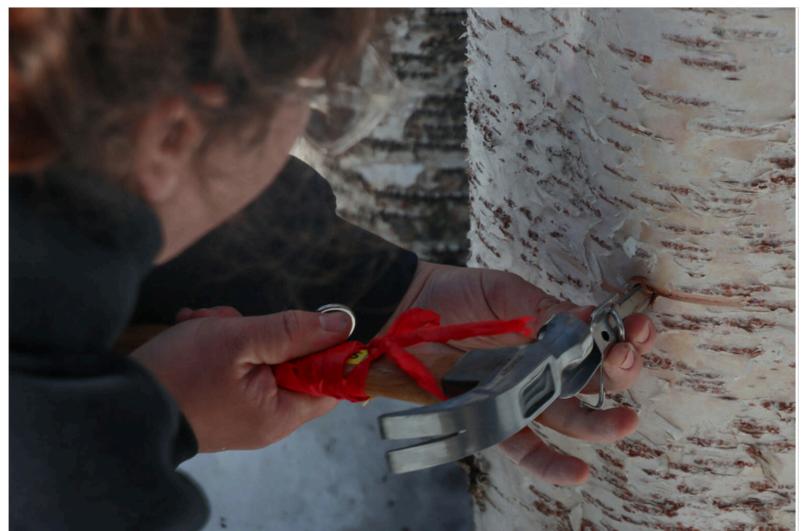
Figure 9. (A) Sea ice extent and (B) sea ice concentration as of April 30, 2022, and as compared with the 1981 - 2010 median edge. Images: National Snow and Ice Data Center (nsidc.org).

Newsworthy Information

As Alaska warms, birch tree tappers in Talkeetna wrestle with erratic season

Sap runs are getting earlier and less predictable, trending towards an earlier and shorter window for ideal conditions

<https://www.ktoo.org/2022/04/18/alaska-warming-temperatures-and-birch-tree-sap-production/>



SueEllen Bontrager aims a tap into a birch tree. She just drilled a hole into the tree to test if sap would come out. (Photo by Lex Treinen/Alaska Public Media)



Photo by Craig George

A snowmachine rests on drift-dimpled snow stretching to the horizon in this view from George Divoky's cabin on Cooper Island east of Utqiagvik in April 2022. Photo by Craig George.

His 48th summer on top of the world

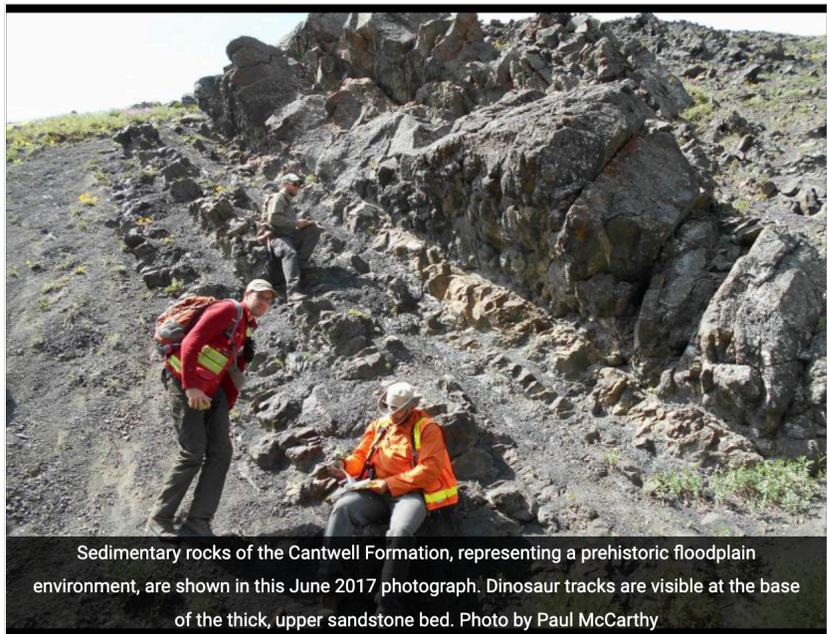
George Divoky will spend his 48th consecutive summer on Cooper Island studying the black guillemot, a bird that has become a symbol of a warming planet.

<https://uaf.edu/news/his-48th-summer-on-top-of-the-world.php#gsc.tab=0>

Precipitation helped drive distribution of Alaska dinosaurs

Precipitation, more than temperature, influenced the distribution of herbivorous dinosaurs in what is now Alaska, according to new research published this month.

<https://www.gi.alaska.edu/news/precipitation-helped-drive-distribution-alaska-dinosaurs>



Sedimentary rocks of the Cantwell Formation, representing a prehistoric floodplain environment, are shown in this June 2017 photograph. Dinosaur tracks are visible at the base of the thick, upper sandstone bed. Photo by Paul McCarthy

Appendix

Table A1: April 2022 daily records of mean daily temperature, i.e. highest/lowest values of mean daily temperature ever recorded on specific days. Records are computed since the beginning of the respective time series. Two new highest mean daily temperature records were set and none was set for lowest mean daily temperature record.

Highest Mean Daily Temperature on Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Bethel	2022-04-12	42.0	2017	41.5
Nome	2022-04-30	45.5	1941	41.0

Table A2: April 2022 daily records of maximum daily temperature, i.e. highest/lowest values of maximum daily temperature ever recorded on specific days. Records are computed since the beginning of the respective time series. One new highest maximum daily temperature record was set and one was set for lowest maximum daily temperature record.

Highest Maximum Daily Temperature Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Nome	2022-04-30	53.0	1953	51.0

Lowest Maximum Daily Temperature Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Juneau	2022-04-11	35.0	2021	36.0

Table A3: April 2022 daily records of minimum daily temperature, i.e. highest/lowest values of minimum daily temperature ever recorded on specific days. Records are computed since the beginning of the respective time series. Three new records for highest minimum daily temperature were set and two new records for lowest minimum daily temperature.

Highest Minimum Daily Temperature Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Bethel	2022-04-13	36.0	1978	34.0
Bethel	2022-04-14	38.0	1935	34.0
Nome	2022-04-30	38.0	1960	36.0

Lowest Minimum Daily Temperature Record				
Station	Date	New Record (°F)	Year of Old Record	Old Record (°F)
Cold Bay	2022-04-09	7.0	1988	12.0
Juneau	2022-04-15	21.0	1948	24.0

This information consists of climatological data compiled by the Alaska Climate Research Center, Geophysical Institute, University of Alaska Fairbanks. For more information on weather and climatology, visit the center website at <http://akclimate.org>. Please report any comments, ideas or errors to uaf-climate@alaska.edu.